SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :R/RADAR & COM ANT JETT FMEA NO 05-6EI-2006 -2 REV:08/15/88

ASSEMBLY :FWD LCA 1 AND 3 CRIT. FUNC: CRIT. HDW:

P/N RI :MC477-0262-0002 P/N VENDOR:

102 103 104

YTITMAUQ : 2

EFFECTIVITY: Х PRASE(S): PL LO OO X DO

: TWO

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS

VEHICLE

PREPARED BY:

APPROVED BY:

DES

C STRONG DES 411 QVCS APPROVED BY (NASA): 5-12-86

REL REL AM 5-15-81 J HARADA J COURSEN QΕ OΣ

J. Commission of 16 1835

REL LANGE 4-10-98 QE 45-20 NJ 4-12-8 EPPE (SEM TO THE FIRST FROM

ITEM:

CONTROLLER, HYBRID DRIVER (HDC), TYPE II - FIRE II COMMAND

FUNCTION:

AFTER THE GUILLOTINE HAS BEEN FIRED WITH "ARM" AND FIRE I COMMANDS PRESENT, THIS HOC DELAYS (4 SECONDS) FIRING OF PYROTECHNIC INITIATOR CONTROLLERS (PIC'S) FOR THE SEPARATION NUT FOR JETTISON OF THE KU-BAND ANTENNA. 81V76A16(1), 83V76A18(1)

FAILURE MODE:

INADVERTENT CUTPUT, FAILS "ON"

CAUSE(S):

PIECE-PART FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK. PROCESSING ANOMALY, THERMAL STRESS

EFFECT(S) ON:

- (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE:
- (A,B) NO EFFECT LOSS OF FUNCTION IN ONE OF TWO SETS OF PIC'S FOR SEPARATION NUT FIRING. PREMATURE OUTPUT (FIRE II BEFORE ARM) CAUSES PIC TO BE DISABLED BY INHIBITING PIC CAPACITOR BANK CHARGING. REDUNDANCY
- (C,D) NO EFFECT UNTIL SECOND FAILURE LOSS OF ANTENNA SEPARATION NOT FIRING CAPABILITY OF THE REDUNDANT PIC. FAILURE TO JETTISON DEPLOYED ANTENNA WOULD PREVENT PAYLOAD BAY DOOR CLOSURE PRECLUDING A SAFE VEHICLE RETURN. POSSIBLE LOSS OF CREW/VEHICLE.

FIRST FAILURE IS NOT DETECTABLE IN FLIGHT SINCE THE HYBRID DRIVER IS NOT MONITORED NOR IS IT USED UNTIL JETTISON OF THE KU-BAND ANTENNA IS REQUIRED.

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DISPOSITION & RATIONALE:

(A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE:

(A-D) DISPOSITION AND RATIONALE
REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER

(B) GROUND TURNAROUND TEST

"KU-BAND ANTENNA JETTISON SYSTEM VERIFICATION" VERIFIES INTEGRITY OF KU-BAND ANTENNA JETTISON ARM AND FIRE CIRCUITS. TESTS ARE PERFORMED PRIOR TO EACH FLIGHT WITH ALL PYROS SAFED WITH NASA STANDARD INITIATOR (NSI) NO-GO SIMULATORS INSTALLED.

(E) OPERATIONAL USE NONE